Serial No.: 10/537,187

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Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently Amended) A compound represented by formula I:

or a pharmaceutically acceptable salt or solvate thereof, wherein:

a and b are independently selected from the integers 0 and 1, such that the sum of a and b is 0 or 1; one
of a and b is 1 and the other is 0:

X is selected from CH₂ and C(O);

R¹ is selected from the group consisting of:

- (1) C₁₋₁₅ alkyl optionally substituted with up to five groups as follows: (a) 1-3 OH groups; (b) 1 oxo group; (c) 1-5 halo groups, up to a perhaloalkyl group; (d) 1-3 C₁₋₆ alkoxy groups optionally substituted with up to five halo or a perhaloalkoxy, or up to 2 hydroxy or CO₂R⁶ groups; (e) 1-2 CO₂R⁶ groups and (f) 1-2 phenyl groups, each optionally substituted as follows: 1-5 halo groups, (2) 1-2 OH, CO₂R⁶, CN or S(O)_pR⁵ groups, and (3) 1-2 C₁₋₆ alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO₂R⁶ groups; and
 - (2) aryl or heteroaryl, optionally substituted as set forth below:
- (a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3 C_{1-15} alkyl or alkoxy groups, each optionally substituted with up to five halo and 1-2 hydroxy or CO_2R^6 groups; (d) 1-2 CO_2R^6 , CN, $S(O)_pR^5$ or $CONR^9R^{10}$ groups; (e) NR^9R^{10} ; (f) SCF_3 ; (g) phenyl, heteroaryl or O-phenyl, said group being optionally substituted with 1-5 halo groups, 1-2 OH, CO_2R^6 , CN or $S(O)_nR^5$ groups, and 1-2 C_{1-6} alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO_2R^6 groups;

R² represents H or C₁₋₆alkyl;

R³ represents H or F;

R⁴ is selected from the group consisting of H, F and OH;

or R³ and R⁴ are taken in combination and represent an oxo group;

R⁵ represents a C₁₋₁₀alkyl group;

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R⁶ represents H or C₁₋₁₀alkyl, optionally substituted with OH, OC₁₋₆alkyl, CO₂H, CO₂C₁₋₆alkyl, and 1-3 halo groups;

R⁷ represents H, CO₂R⁶, C₁₋₆alkyl optionally substituted with OH, OC₁₋₆alkyl, CO₂R⁶ or 1-3 halo groups;

 R^8 and R^9 are independently selected from H and C_{1-6} alkyl; R^{10} is H or is independently selected from:

(a) C₁₋₁₀alkyl, optionally substituted with OH, OC₁₋₆alkyl, CO₂H, CO₂C₁₋₆alkyl, and 1-3 halo groups; (b) aryl or C₁₋₆ alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH, C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c) heterocycle, or C₁₋₆alkylheterocycle, optionally substituted with 1-5 halo groups and 1-3 groups selected from: oxo, C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or C₁₋₆alkylheteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from: C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo;

R¹¹ is independently selected from the group consisting of:

(a) C₁₋₁₀alkyl, optionally substituted with OH, OC₁₋₆alkyl, CO₂H, CO₂C₁₋₆alkyl, and I-3 halo groups; (b) aryl or C₁₋₆ alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH, C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c) heterocycle, or C₁₋₆alkyl-heterocycle, optionally substituted with 1-5 halo groups and 1-3 groups selected from: oxo, C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or C₁₋₆alkyl-heteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from: C₁₋₁₀alkyl and OC₁₋₁₀ alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo;

Y represents a 4 to 8 membered spirocarbocyclic ring or a spiroheterocyclic ring containing up to three heteroatoms, 0.1 of which are selected from O and S and 0.3 of which are N, said spirocarbocyclic or spiroheterocyclic ring being optionally substituted on either carbon or nitrogen atoms with up to three groups independently selected as follows:

(a) 1-2 phenyl groups, each being optionally substituted with one to five groups independently selected from the group consisting of: (1) 1-3 hydroxy groups; (2) 1-5 halo groups; (3) 1-3 C₁₋₈alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo or 1-2 OH or CO₂R⁶ groups, and (4) 1-2 CO₂R⁶, CN, S(O)₀R⁵, CONR⁹R¹⁰ or NO₂ groups;

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(b) C_{1-10} alkyl optionally substituted with 1-5 groups selected as follows: (i) 1-3 hydroxy groups; (ii) 1 oxo group; (iii) 1-5 halo groups up to perhalo; (iv) 1-3 C₁₋₁₀ alkoxy groups, optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or CO₂R⁶ groups; (v) 1-2 CO₂R⁶ groups; (vi) phenyl, optionally substituted with one to five groups independently selected from the group consisting of: (a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3 C₁₋₆ alkyl or alkoxy groups, optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or CO₂R⁶ groups; (d) 1-2 CO₂R⁶, CN, S(O)₀R⁵, CONR⁹R¹⁰ or NO₂ groups; (e) 1-2 phenyl rings, each of which is optionally substituted as follows: 1-3 C₁₋₁₀ alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo up to perhalo, or 1-2 hydroxy or CO₂R⁶ groups;

said spirocarbocyclic or spiroheterocyclic ring being further optionally substituted on a carbon atom with a member selected from the group consisting of:

- (a) $-NR^8-C(O)-NR^9R^{10}$; (b) $-NR^8-CO_2R^{11}$; (c) $-NR^8-C(O)R^{11}$; (d) $-NR^9R^{10}$;
- (e) $-NR^8SO_2R^{11}$; (f) $-SO_2-NR^9R^{10}$; (g) $-C(O)NR^9R^{10}$ and (h) $-OC(O)-NR^9R^{10}$;

and when said ring contains a nitrogen atom, said ring being further optionally substituted on the nitrogen atom with a member selected from the group consisting of:

(a) $-C(O)NR^9R^{10}$; (b) $-CO_2R^{11}$; (c) $C(O)R^{11}$; and (d) $-SO_2R^{11}$;

m and p are independently selected from 0, 1 and 2, and n is an integer from 0 to 6, when both m and n are zero, Z is selected from 5-tetrazolyl and 5-(2-oxo-1,3,4oxadiazolyl) and when one of m and n is other than zero, Z is selected from the group consisting of: CO₂R⁶, with R⁶ as defined above, 5-tetrazolyl and 5-(2-oxo-1,3,4-oxadiazolyl).

> Claim 2 (Original) A compound in accordance with claim 1 wherein: R¹ is selected from the group consisting of:

- (1) C₁₋₆ alkyl optionally substituted with 1-3 groups selected from: OH, halo, C₁₋₃ alkoxy, halo-C₁₋₃alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO₂R⁵, and I-2 C_{1.3}alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and
- aryl optionally substituted with 1-3 halo groups; 1-2 C₁₋₃alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR 9R 10 wherein R 2 and R 10 are H or methyl; SCF3 and heteroaryl.

Claim 3 (Original) A compound in accordance with claim 2 wherein: R¹ represents phenyl optionally substituted with 1-2 groups selected from Br, Cl; trifluoromethyl and trifluoromethoxy.

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Claims 4-5 (Cancelled)

Claim 6 (Currently Amended) A compound in accordance with claim 1 wherein: Y represents a spiroC_{4.8}cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1-N atom,

said ring being optionally substituted with a C₁₋₆ alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C₁₋₃ alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups.

Claim 7 (Currently Amended) A compound in accordance with claim 6 wherein: Y represents a spirocyclohexyl-or spiropiperidinyl group that is substituted with a C₁₋₄ alkyl group that is optionally substituted with a phenyl ring.

Claim 8 (Original) A compound in accordance with claim 7 wherein: Y represents a spirocyclohexyl group substituted with a t-butyl group at the 4 position.

Claim 9 (Original) A compound in accordance with claim 1 wherein: R² is H or C₁. 3alkyl.

Claim 10 (Original) A compound in accordance with claim 9 wherein: R² represents H.

Claim 11 (Original) A compound in accordance with claim 1 wherein: R⁷ represents H or methyl.

Claim 12 (Original) A compound in accordance with claim 11 wherein R⁷ represents H.

Claim 13 (Original) A compound in accordance with claim 1 wherein: n and m represent 0, and Z represents a 5-tetrazolyl group.

Claim 14 (Original) A compound in accordance with claim 1 wherein: m represents 0, n represents 2, and Z represents a CO₂R⁶ group.

Claim 15 (Original) A compound in accordance with claim 1 wherein:

m and n each represent 1, R3 represents OH, R4 represents H and Z represents a CO2R6 group.

Claim 16 (Currently Amended) A compound in accordance with claim 1 wherein: R¹ is selected from the group consisting of:

- (1) C_{1-6} alkyl optionally substituted with 1-3 groups selected from: OH, halo, C_{1-3} alkoxy, halo- C_{1-3} alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO_2R^5 , and 1-2 C_{1-3} alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and
- (2) aryl optionally substituted with 1-3 halo groups; 1-2 C_{1-3} alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR⁹R¹⁰ wherein R⁹ and R¹⁰ are H or methyl; SCF₃ and heteroaryl; .

X represents CH2;

a and b represent 0 or a represents 1 and b represents 0; one of a and b represent 1 and the other represents 0:

Y represents a spiroC₄₋₈cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

said ring being optionally substituted with a C_{1-6} alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C_{1-3} alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

R² is H or C₁₋₃alkyl;

R⁷ represents H or methyl;

m and n represent 0, and Z represents a 5-tetrazolyl group.

Claim 17 (Currently Amended) A compound in accordance with claim 1 wherein: R¹ is selected from the group consisting of:

(1) C_{1-6} alkyl optionally substituted with 1-3 groups selected from: OH, halo, C_{1-3} alkoxy, halo- C_{1-3} alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO_2R^5 , and 1-2 C_{1-3} alkyl or alkoxy groups optionally substituted with 1-3 halo groups,

and

(2) aryl optionally substituted with 1-3 halo groups; 1-2 C₁₋₃alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR⁹R¹⁰ wherein R⁹ and R¹⁰ are H or methyl; SCF₃ and heteroaryl;

X represents CH₂;

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a-and b represents 0 or a represents 1 and b represents 0; one of a and b represents 1 and the other represents 0:

Y represents a spiroC₄₋₈cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

said ring being optionally substituted with a C_{1-6} alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C_{1-3} alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

R² is H or C_{1.3}alkyl;

R⁷ represents H or methyl;

m represents 0, n represents 2, and Z represents a CO₂R⁶ group.

Claim 18 (Currently Amended) A compound in accordance with claim 1 wherein: R¹ is selected from the group consisting of:

- (1) C_{1-6} alkyl optionally substituted with 1-3 groups selected from: OH, halo, C_{1-3} alkoxy, halo- C_{1-3} alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO_2R^5 , and 1-2 C_{1-3} alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and
- (2) aryl optionally substituted with 1-3 halo groups; 1-2 C_{1-3} alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR⁹R¹⁰ wherein R⁹ and R¹⁰ are H or methyl; SCF₃ and heteroaryl;

X represents CH₂;

a and b represents 0 or a represents 1 and b represents 0; one of a and b represents 1 and the other represents 0;

Y represents a spiroC₄₋₈cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

said ring being optionally substituted with a C_{1-6} alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C_{1-3} alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

R² is H or C₁₋₃alkyl;

R⁷ represents H or methyl;

m and n each represent 1, R³ represents OH, R⁴ represents H and Z represents a CO₂R⁶ group.

Claim 19 (Currently Amended) A compound in accordance with claim 1 selected from the following table:

TABLE 1			
Compound		Compound	
CF30		OCF ₃	
CF ₃ O OH OH		moderate of the state of the st	
		HC PH AC PH	
		MC ON CONTROL OF F	

Hic CH	We to the second of the second
HC CH C	H _S C OH _S P _F P _F
MC CON ON	HC CH PF F
HC CH CH CH	HC CH PFF

HC CH, NO	HC CH CO	
	HC CH,	
OH OH	HC CH CH	fo Com
t-Bu OCF3	HC CH CH	Po OH

t-Bu COH ₃	HC CHI CO
OCF ₃ HN HO OCH ₃	HC CH CH
t-Bu NH HO OH	HC CH CH CH CO
OCF ₃	HC CH HC CH HC CH

H ₅ C CH ₃ CI	H _C CH ₃ H _C CH ₃ N N N N N N N N N N N N N
H ₂ C CH ₃ N N N N N N N N N N N N N N N N N N N	H _C C CH _S H _C C
H ₃ C OH ₃ N O OH	
H ₃ C CH ₃ N O OH	t-Bu OCF ₃

H ₂ C OH ₃ OH OH	N OH
t-Bu O HO OH	t-Bu to OH
t-Bu CI OH OH	t-Bu t-Bu t-Bu t-Bu t-Bu t-Bu t-Bu t-Bu

t-Bu CI HN OH		H ₂ C CH ₃
H ₂ C CH ₃ O OH	-	HN HO OH
H ₂ C CH ₃ NO NO OH		H ₃ C Old NO

H ₃ C CH ₃ N N N N N N N N N N N N N N N N N N N	_	HC CH, NO HC CH
H ₂ C CH ₃	<u> </u>	a do
t-Bu CF ₃		а— С 2 — С 3 — С 3 — С 4 — С 6 — С 6 — С 7 — С

t-Bu NO HO OH	I-BU CH
H ₂ C QH ₃ And O	t-Bu Ci HN OH
HC OHS NO	t-Bu NO HO OH

H ₂ CH ₃	H ₂ C CH ₃ NO NO OH
H ₂ C OH ₃ O N N N N N N N N N N N N N N N N N N	H _C CH _S NO
H ₃ C CH ₃	H _S C OH, N H _S C OH, N H _S C OH, N N N

t-Bu CH ₃ Br	H ₂ C ₂ CH ₃ C ₃ C ₄ C ₄ C ₄ C ₅ C ₆ C ₆ C ₆ C ₇ C ₆ C ₇ C ₆ C ₇ C ₆ C ₇
t-Bu NH OH	t-Bu CH ₃
t-Bu Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	H ₂ C OH ₃

t-Bu N N N N N N N N N N N N N N N N N N N	H ₂ CH ₃
H ₂ C CH ₃ N O N N N N N N N N N N N N N N N N N	CH ₃ CH ₃ OH
HC CH NO	CH ₃

H,C OH, NO	CH ₃
H ₂ C, N-CH ₃	CH ₃ CH ₃ CH ₃ OH
CH ₂ -CH ₂ CH ₃ CH ₃ CH ₄ CH ₅ CH ₅ CH ₆ CH ₆ CH ₇	CH ₃ C
CF ₃ CF ₃ CF ₃ CF ₃ CF ₃ N N N N N N N N N N N N N N N N N N N	CH ₃ CH ₃ O

CH ₃ —CH ₃	CF ₃ CF ₃ CF ₃ OH	1	CH ₉
CH ₃ CH ₃	CF ₃ F N O N N N N N N N N N N N N N N N N N	сн _а <u>с</u> нь	CH _S CI
CH ₃ CH ₃	F N OH	CH ₃	CH ₃
CH ₃ CH ₃		ch _a	

CH ₂ CH ₃	CHO CHO NO
CH ₃	CH CHE
CH ₂ CH ₃ CH ₃ CH ₃ O OH	CH ₂ CH ₃ C
CH ₉ CH ₉ CH ₉ CH ₉ OH OH	CH2 CH2 CH2

or a pharmaceutically acceptable salt or solvate thereof.

Claim 20 (Original) A pharmaceutical composition comprising a compound in accordance with claim 1 in combination with a pharmaceutically acceptable carrier.

Claim 21 (Original) A method of treating type 2 diabetes mellitus in a mammalian patient in need of such treatment comprising administering to said patient a compound in accordance with claim 1 in an amount that is effective to treat said type 2 diabetes mellitus.